EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	51	yeast same ((DNA adj polymerase adj delta) OR (Pol3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:31
L2	2	11 same mutator	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:30
L3	7	11 same mutat$4	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:31
L4	363	((DNA adj polymerase adj delta) OR (Pol3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
L5	33	14 same mutat$4	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
L6	10	14 same temperature	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
L7	402	((DNA adj polymerase adj delta) OR (Pol3$))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
L8	36	17 same mutat$4	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
L9	12	17 same temperature	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/08/17 18:32
S1	31	mitsuru near2 furusawa.in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2006/07/06 16:39

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     FILE 'MEDLINE, EMBASE, BIOSIS, CAPLUS' ENTERED AT 18:35:26 ON 17 AUG 2006
L1          3219 S (DNA POLYMERASE DELTA) OR (POL3?)
L2           133 S L1 (P) MUTATOR
L3           618 S L1 (P) MUTANT
L4            51 S L2 (P) YEAST
L5           269 S L3 (P) YEAST
L6            16 DUP REM L4 (35 DUPLICATES REMOVED)
L7           153 S L3 (P) TEMPERATURE
L8            76 S L7 (P) YEAST
L9            19 DUP REM L8 (57 DUPLICATES REMOVED)
L10           15 S L6 AND PY<= 2003
L11           19 S L9 AND PY<= 2003
L12           19 S L11 NOT L10
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AU   Ramachandran, K. [Reprint author]; Dimon, M.; Faye, G.; Kunz, B. A.
     [Reprint author]
SO   Environmental and Molecular Mutagenesis, (1993) Vol. 21, No.
     SUPPL. 22, pp. 56.
     Meeting Info.: 24th Annual Scientific Meeting of the Environmental Mutagen
     Society. Norfolk, Virginia, USA. April 17-22, 1993.
     CODEN: EMMUEG. ISSN: 0893-6692.
TI   Elimination of proofreading by DNA polymerase
     delta in yeast: Specificity of the mutator
     effect and influence of strand identity.
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AU   Tran H T; Gordenin D A; Resnick M A
SO   Genetics, (1996 Aug) Vol. 143, No. 4, pp. 1579-87.
     Journal code: 0374636. ISSN: 0016-6731.
TI   The prevention of repeat-associated deletions in Saccharomyces cerevisiae
     by mismatch repair depends on size and origin of deletions.
AB   We have investigated the effects of mismatch repair on 1-to 61-bp
     deletions in the yeast Saccharomyces cerevisiae.  The deletions
     are likely to involve unpaired loop intermediates resulting from DNA
     polymerase slippage.  The mutator effects of mutations in the
     DNA polymerase delta (POL3) gene and
     the recombinational repair RAD52 gene were studied in combination with
     mismatch repair defects.  The pol3-t mutation increased up to
     1000-fold the rate of extended (7-61 bp) but not of 1-bp deletions.  In a
     rad52 null mutant only the 1-bp deletions were increased (12-fold).  The
     mismatch repair mutations pms1, msh2 and msh3 did not affect 31- and 61-bp
     deletions in the pol3-t but increased the rates of 7- and 1-bp
     deletions.  We propose that loops less than or equal to seven bases
     generated during replication are subject to mismatch repair by the PMS1,
     MSH2, MSH3 system and that in cannot act on loops > or = 31 bases.  In
     contrast to the pol3-t, the enhancement of 1-bp deletions in a
     rad52 mutant is not altered by a pms1 mutation.  Thus, mismatch repair
     appears to be specific to errors of DNA synthesis generated during
     semiconservative replication.
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AU   Kokoska R J; Stefanovic L; DeMai J; Petes T D
SO   Molecular and cellular biology, (2000 Oct) Vol. 20, No. 20, pp.
     7490-504.
     Journal code: 8109087. ISSN: 0270-7306.
TI   Increased rates of genomic deletions generated by mutations in the yeast
     gene encoding DNA polymerase delta or by decreases in the cellular levels
     of DNA polymerase delta.
AB   In Saccharomyces cerevisiae, POL3 encodes the catalytic subunit
     of DNA polymerase delta.  While
     yeast POL3 mutant strains that lack the proofreading
     exonuclease activity of the polymerase have a strong mutator
     phenotype, little is known regarding the role of other Pol3p
     domains in mutation avoidance.  We identified a number of pol3
     mutations in regions outside of the exonuclease domain that have a
     mutator phenotype, substantially elevating the frequency of
     deletions.  These deletions appear to reflect an increased frequency of
     DNA polymerase slippage.  In addition, we demonstrate that reduction in
     the level of wild-type DNA polymerase results in a similar mutator
     phenotype.  Lowered levels of DNA polymerase also result in increased
     sensitivity to the DNA-damaging agent methyl methane sulfonate.  We
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conclude that both the quantity and the quality of DNA polymerase delta is important in ensuring genome stability.

AU Budd M E; Campbell J L
SO Molecular and cellular biology, (1993 Jan) Vol. 13, No. 1, pp. 496-505.
Journal code: 8109087. ISSN: 0270-7306.
TI DNA polymerases delta and epsilon are required for chromosomal replication in Saçcharomyces cerevisiae.
AB Three DNA polymerases, alpha, delta, and epsilon are required for viability in Saccharomyces cerevisiae. We have investigated whether DNA polymerases epsilon and delta are required for DNA replication. Two temperature-sensitive mutations in the POL2 gene, encoding DNA polymerase epsilon, have been identified by using the plasmid shuffle technique. Alkaline sucrose gradient analysis of DNA synthesis products in the mutant strains shows that no chromosomal-size DNA is formed after shift of an asynchronous culture to the nonpermissive temperature. The only DNA synthesis observed is a reduced quantity of short DNA fragments. The DNA profiles of replication intermediates from these mutants are similar to those observed with DNA synthesized in mutants deficient in DNA polymerase alpha under the same conditions. The finding that DNA replication stops upon shift to the nonpermissive temperature in both DNA polymerase alpha- and DNA polymerase epsilon- deficient strains shows that both DNA polymerases are involved in elongation. By contrast, previous studies on pol3 mutants, deficient in DNA polymerase delta, suggested that there was considerable residual DNA synthesis at the nonpermissive temperature. We have reinvestigated the nature of DNA synthesis in pol3 mutants. We find that pol3 strains are defective in the synthesis of chromosomal-size DNA at the restrictive temperature after release from a hydroxyurea block. These results demonstrate that yeast DNA polymerase delta is also required at the replication fork.

AU Wang Z; Wu X; Friedberg E C
SO Molecular and cellular biology, (1993 Feb) Vol. 13, No. 2, pp. 1051-8.
Journal code: 8109087. ISSN: 0270-7306.
TI DNA repair synthesis during base excision repair in vitro is catalyzed by DNA polymerase epsilon and is influenced by DNA polymerases alpha and delta in Saccharomyces cerevisiae.
AB Base excision repair is an important mechanism for correcting DNA damage produced by many physical and chemical agents. We have examined the effects of the REV3 gene and the DNA polymerase genes POL1, POL2, and POL3 of Saccharomyces cerevisiae on DNA repair synthesis is nuclear extracts. Deletional inactivation of REV3 did not affect repair synthesis in the base excision repair pathway. Repair synthesis in nuclear extracts of pol1, pol2, and pol3 temperature -sensitive mutants was normal at permissive temperatures . However, repair synthesis in pol2 nuclear extracts was defective at the restrictive temperature of 37 degrees C and could be complemented by the addition of purified yeast DNA polymerase epsilon. Repair synthesis in pol1 nuclear extracts was proficient at the restrictive temperature unless DNA polymerase alpha was inactivated prior to the initiation of DNA repair. Thermal inactivation of DNA polymerase delta in pol3 nuclear extracts enhanced DNA repair synthesis approximately 2-fold, an effect which could be specifically reversed by the addition of purified yeast DNA polymerase delta to the extract. These results demonstrate that DNA repair synthesis in the yeast base excision repair pathway is catalyzed by DNA polymerase epsilon but is apparently modulated by the presence of DNA polymerases alpha and delta.

AU Torres-Ramos C A; Prakash S; Prakash L
SO The Journal of biological chemistry, (1997 Oct 10) Vol. 272, No. 41, pp. 25445-8.
Journal code: 2985121R. ISSN: 0021-9258.
TI Requirement of yeast DNA polymerase delta in post-replicational repair of UV-damaged DNA.

AB DNA lesions in the template strand pose a block to the replication machinery. Replication across such lesions may occur by a mutagenic bypass process in which a wrong base is inserted opposite the lesion or may involve processes that are relatively error-free. Genetic studies in the yeast Saccharomyces cerevisiae have indicated the requirement of REV3-encoded DNA polymerase in mutagenic bypass. The DNA polymerase responsible for error-free bypass, however, has not been identified, but genetic studies implicating proliferating cell nuclear antigen in this process have suggested that either DNA polymerase delta or DNA polymerase epsilon may be involved. Here, we use temperature-sensitive (ts) conditional lethal mutations of the S. cerevisiae POL2 and POL3 genes, which encode DNA polymerase epsilon and delta, respectively, and show that post-replicational bypass of UV-damaged DNA is severely inhibited in the pol3-3 mutant at the restrictive temperature.
By contrast, the pol-2-18 mutation has no adverse effect on this process at the restrictive temperature. From these observations, we infer a requirement of DNA polymerase delta in post-replicative bypass of UV-damaged DNA.

AU Kokoska R J; Stefanovic L; Buermeyer A B; Liskay R M; Petes T D
SO Genetics, (1999 Feb) Vol. 151, No. 2, pp. 511-9.
Journal code: 0374636. ISSN: 0016-6731.
TI A mutation of the yeast gene encoding PCNA destabilizes both microsatellite and minisatellite DNA sequences.
AB The POL30 gene of the yeast Saccharomyces cerevisiae encodes the proliferating cell nuclear antigen (PCNA), a protein required for processive DNA synthesis by DNA polymerase delta and epsilon. We examined the effects of the pol30-52 mutation on the stability of microsatellite (1- to 8-bp repeat units) and minisatellite (20-bp repeat units) DNA sequences. It had previously been shown that this mutation destabilizes dinucleotide repeats 150-fold and that this effect is primarily due to defects in DNA mismatch repair. From our analysis of the effects of pol30-52 on classes of repetitive DNA with longer repeat unit lengths, we conclude that this mutation may also elevate the rate of DNA polymerase slippage. The effect of pol30-52 on tracts of repetitive DNA with large repeat unit lengths was similar, but not identical, to that observed previously for pol3-t, a temperature-sensitive mutation affecting DNA polymerase delta. Strains with both pol30-52 and pol3-t mutations grew extremely slowly and had minisatellite mutation rates considerably greater than those observed in either single mutant strain.